

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Atty. Docket

JOCHEN PETERS

DE 010031

Serial No.

Group Art Unit

Filed: CONCURRENTLY

Ex.

Title: SPEECH RECOGNITION SYSTEM, TRAINING ARRANGEMENT AND METHOD  
OF CALCULATING ITERATION VALUES FOR FREE PARAMETERS OF A MAXIMUM-  
ENTROPY SPEECH MODEL

Commissioner for Patents

Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Prior to calculation of the filing fee and examination, please  
amend the above-identified application as follows, where marked-up  
versions of the amended claims 5 and 6 are attached as Appendix A:

IN THE CLAIMS

Please amend the claims as follows:

1 5. (Amended) A method as claimed in Claim 1, characterized in  
2 that the function G represents a Generalized Iterative Scaling  
3 (GIS) training algorithm, and is defined as follows:  
4

$$5 \lambda_{\alpha}^{(n+1)} = G = \lambda_{\alpha}^{(n)} + t_{\alpha} \cdot \log \left( \frac{m_{\alpha}}{m_{\alpha}^{(n)}} \cdot \frac{1 - \sum_{\beta \in Ai(n)} t_{\beta} \cdot m_{\beta}^{(n)}}{1 - \sum_{\beta \in Ai(n)} t_{\beta} \cdot m_{\beta}} \right),$$

6  
7 where  $\alpha$  represents a specific attribute and  $\beta$  all the attributes  
8 from the selected attribute group  $Ai(n)$ .

1 6. (Amended) A method as claimed in Claim 2, characterized in  
2 that the attribute function  $f_{\alpha}$  is an orthogonalized attribute  
3 function  $f_{\alpha}^{ortho}$ , which is defined as follows:

$$f_{\alpha}^{ortho}(h, w) = \begin{cases} 1 & \text{if } \alpha \text{ is the attribute with the highest range in } A_i \text{ which} \\ & \text{correctly describes the string of words } (h, w) \\ 0 & \text{otherwise} \end{cases}$$

REMARKS

The foregoing amendment to claims 5 and 6 were made solely to avoid filing the claims in multiple dependent form so as to avoid the additional filing fee.

The claims were not amended in order to address issues of patentability and Applicants respectfully reserve all rights under the Doctrine of Equivalents. Applicants furthermore reserve all rights to reintroduce subject matter deleted herein at a later time during the prosecution of this application or continuing applications.

Respectfully submitted,

By 

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February 13, 2002

## Appendix A

### Version with Markings to Show Changes Made to the Claims

The following are marked up versions of amended claims 5 and

6:

1 5. (Amended) A method as claimed in ~~one of the above claims~~  
2 Claim 1, characterized in that the function G represents a  
3 Generalized Iterative Scaling (GIS) training algorithm, and is  
4 defined as follows:

5

$$\lambda_{\alpha}^{(n+1)} = G = \lambda_{\alpha}^{(n)} + t_{\alpha} \cdot \log \left( \frac{m_{\alpha}}{m_{\alpha}^{(n)}} \cdot \frac{1 - \sum_{\beta \in Ai(n)} t_{\beta} \cdot m_{\beta}^{(n)}}{1 - \sum_{\beta \in Ai(n)} t_{\beta} \cdot m_{\beta}} \right),$$

6  
7

8 where  $\alpha$  represents a specific attribute and  $\beta$  all the attributes  
9 from the selected attribute group  $Ai(n)$ .

1 6. (Amended) A method as claimed in ~~one of Claims 2 to 5~~,  
2 characterized in that the attribute function  $f_{\alpha}$  is an  
3 orthogonalized attribute function  $f_{\alpha}^{ortho}$ , which is defined as  
4 follows:

5

$$f_{\alpha}^{ortho}(h, w) = \begin{cases} 1 & \text{if } \alpha \text{ is the attribute with the highest range in } Ai \text{ which} \\ & \text{correctly describes the string of words } (h, w) \\ 0 & \text{otherwise} \end{cases}$$

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